Amendments to the claims (this listing replaces all prior versions):

1 – 41. (Canceled)

42. (Currently amended) ~~An~~ A field asymmetric ion mobility spectrometer comprising an ionizer, an ion filter, ~~and~~ a deflector electrode, an ion detector, and a controller;

wherein the ion filter is located between the deflector electrode and the ion detector and defines at least one ion channel along which ions may pass from the ionizer to the ion detector; ~~and~~

wherein the ion channel is defined by a plurality of conductive layers separated along the length of the channel by at least one non-conductive layer; and

~~the spectrometer further comprising control means for applying~~ wherein the controller is configured to apply an oscillating electric potential having a first phase and a second phase to the conductive layers of the ion channel, the electric potential directing ions within the ion channel toward the ion detector in the first phase and in a direction other than toward the ion detector in the second phase.

43. (Currently amended) The spectrometer of claim 42, ~~further comprising a~~ wherein the deflector electrode~~, for deflecting~~ deflects ions away from the ionizer and toward[[s]] the ion detector.

44. (Currently amended) The spectrometer of claim 42, wherein the controller ~~means~~ allows the application of a time-varying electric potential to the conductive layers.

45. (Canceled) The spectrometer of claim 44, wherein the electric potential is oscillating.

46. (Previously presented) The spectrometer of claim 44, wherein the electric potential is time-varying in an asymmetric manner.

47. (Currently amended) The spectrometer of claim 42, wherein the controller ~~means~~ allows the electric potential to be selectively varied.

48. (Previously presented) The spectrometer of claim 42, wherein the filter comprises a plurality of ion channels.

49. (Previously presented) The spectrometer of claim 48, wherein the conductive layers form electrodes and the ion channels are defined at either end by apertures in said electrodes.

50. (Previously presented) The spectrometer of claim 42, wherein the filter comprises two or more interdigitated electrode arrays, each array having a plurality of channel-defining slots.

51. (Previously presented) The spectrometer of claim 42, wherein the filter comprises a resistive or semiconductive substrate on which the conductive layers and non-conductive layer are provided.

52. (Previously presented) The spectrometer of claim 51, wherein the substrate is the ion detector.

53. (Previously presented) The spectrometer of claim 42, wherein two conductive layers are provided.

54. (Previously presented) The spectrometer of claim 42, wherein two non-conductive layers are provided.

55. (Currently amended) The spectrometer of claim 42, wherein the filter has ~~the~~ a structure C-NC-C-NC, where C and NC represent conductive and non-conductive layers respectively.

56. (Previously presented) The spectrometer of claim 55, wherein the filter further includes a substrate.

57. (Currently amended) The spectrometer of claim 42, wherein the filter has ~~the~~ a structure C-NC-substrate-NC-C, where C and NC represent conductive and non-conductive layers respectively.

58. (Previously presented) The spectrometer of claim 42, wherein the spectrometer comprises a plurality of functional layers.

59. (Previously presented) The spectrometer of claim 42 further comprising a semi-permeable membrane.

60. (Previously presented) The spectrometer of claim 59, wherein the membrane comprises a heating element.

61. (Previously presented) The spectrometer of claim 59, wherein the membrane is in the form of an inlet tube.

62. (Previously presented) The spectrometer of claim 42 that comprises a standard.

63. (Previously presented) The spectrometer of claim 42 that comprises multiple ion filters.

64. (Previously presented) The spectrometer of claim 42 that comprises multiple ion detectors.

65. (Currently amended) The spectrometer of claim 42, further comprising a gas flow generator that can generate ~~means for generating~~ a gas flow through the spectrometer.

66. (Currently amended) The spectrometer of claim 65, wherein the gas flow is a counterflow against the direction of movement of ions.

67. (Currently amended) The spectrometer of claim 42, further comprising ~~means for heating~~ a heater configured to heat the filter.

68. (Currently amended) The spectrometer of claim 67, wherein the ~~heating means~~ heater comprises a substrate which is heated by Joule-effect heating.

69. (Previously presented) The spectrometer of claim 42, wherein the ion channel includes inert conductive particles located on the walls of the channel along its length.

70. (Previously presented) The spectrometer of claim 42, wherein the ion filter comprises a wafer-like form.

71. (Previously presented) The spectrometer of claim 42, wherein the ion filter comprises a plurality of stacked planar layers.

72. (Previously presented) The spectrometer of claim 42, wherein the ion channel is curved or serpentine.

73. (Previously presented) The spectrometer of claim 42 that is coupled to one or more other detection or analysis devices.

74. (Currently amended) The spectrometer of claim 42, further comprising a controller configured to operate ~~control means for operating~~ the spectrometer periodically to sample at intervals.

75. (Currently amended) The spectrometer of claim 42, wherein the ion detector comprises an electrode coupled to a capacitor ~~which~~ that is periodically discharged.

76. (Currently amended) A method of analyzing a sample, the method comprising ~~the steps of~~:

ionizing a sample to generate ions adjacent an ion channel within the field asymmetric ion mobility spectrometer of claim 42; ~~the ion channel being defined by a plurality of conductive layers separated along the length of the channel by at least one non-conductive layer;~~

biasing the ions such that, in the absence of other forces, they ~~would tend to~~ travel along the ion channel;

applying an oscillating electric potential to the conductive layers, such that an electric field is established within the ion channel; and

detecting generated ions ~~which~~ that have passed through the ion channel.

77. (Currently amended) An ion filter for use in ~~an~~ a field asymmetric ion mobility spectrometer, the filter defining at least one ion channel along which ions may pass, wherein the ion channel is defined by a plurality of conductive layers separated along the length of the channel by at least one non-conductive layer.

78. (Currently amended) The filter of claim 77, having ~~the~~ a structure C-NC-C-NC, where C and NC represent conductive and non-conductive layers respectively.

79. (Currently amended) The filter of claim 77, having ~~the~~ a structure C-NC-substrate-NC-C, where C and NC represent conductive and non-conductive layers respectively.

80. (Currently amended) A method of manufacturing ~~an~~ a field asymmetric ion mobility spectrometer, the method comprising ~~the steps of~~:

providing a generally planar resistive substrate having thereon a plurality of conductive layers separated by at least one non-conductive layer;

patterning the substrate to provide a filter comprising two or more interdigitated electrode arrays defining a plurality of ion channels themselves defined by a plurality of conductive layers separated along the length of the channel by at least one non-conductive layer; and

attaching said filter on one face to a generally planar ~~ionisation~~ ionization layer comprising means for ~~ionising~~ ionizing an analyte.

81. (Canceled) An ion mobility spectrometer comprising an ionizer, an ion filter, and an ion detector;

wherein the ion filter defines at least one ion channel along which ions may pass from the ionizer to the ion detector; and wherein the ion filter comprises a plurality of electrodes disposed proximate the ion channel;

the spectrometer further comprising electrode controller for controlling the electrodes such that a first drive electric field is generated along the length of the ion channel, and a second transverse electric field is generated orthogonal to the first; and

additional controller for operating the spectrometer periodically to sample at intervals.

82. (Currently amended) An ion filter for use in a spectrometer such as ~~an~~ a field asymmetric ion mobility spectrometer, the filter comprising a pair of interdigitated electrodes defining a plurality of ion channels along which ions may pass.

83. (New) The spectrometer of claim 42, wherein the direction other than toward the ion detector is a direction away from the ion detector.

84. (New) The spectrometer of claim 42, wherein the direction other than toward the ion detector is a direction toward at least one of said conductive layers.

85. (New) The method of claim 76, wherein the direction other than toward the ion detector is a direction away from the ion detector.

86. (New) The method of claim 76, wherein the direction other than toward the ion detector is a direction toward at least one of said conductive layers.